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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/737,126

12/15/2003

Ken A. Nishimura

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AGILENT TECHNOLOGIES, INC.
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EXAMINER

THOMAS, BRANDI N

ART UNIT

PAPER NUMBER

2873

MAIL DATE

DELIVERY MODE

12/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/737,126	Applicant(s) NISHIMURA ET AL.	
	Examiner Brandi N. Thomas	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-18 and 20-26 is/are rejected.
- 7) ☒ Claim(s) 11 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirawa (6831674 B2).

Regarding claim 1, Hirawa discloses, in figures 5 and 8, spatial light modulator, comprising: memory elements (431) configured to store data (512) therein and shift data (512) therebetween (col. 7, lines 1-3); and light modulation elements (121) respectively in communication with the memory elements (431) (col. 7, lines 3-4), wherein each of the light modulation elements (121) is alterable in response to data (512) stored in the respectively corresponding memory elements (431) (col. 7, lines 3-4 and 7-9).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 6, 10, and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirawa (6831674 B2) as applied to claim 1 above, and further in view of Moore et al. (2003/0096497 A1).

Regarding claim 2, Hirawa discloses the claimed invention but does not specifically disclose wherein said memory elements are arranged in an array having rows and columns. Moore et al. discloses, in figure 4, wherein said memory elements (402) are arranged in an array having rows and columns (section 0036, lines 2-3). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Hirawa with the rows and columns of Moore et al. for the purpose of transferring data between the array of elements (section 0036)

Regarding claim 6, Hirawa discloses the claimed invention but does not specifically disclose wherein said memory elements are arranged in a non-orthogonal pattern. Moore et al. discloses, in figure 4, wherein said memory elements are arranged in an orthogonal pattern. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention to include memory elements are arranged in a non-orthogonal pattern for the purpose of transferring data in various patterns and directions.

Regarding claim 10, Hirawa discloses the claimed invention but does not specifically disclose access control elements connected to said respective memory elements. Moore et al. discloses, in figure 4, access control elements (404) connected to said respective memory elements (403) (section 0036, lines 2-8). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Hirawa with the access control elements of Moore et al. for the purpose of controlling the operation of the memory elements (section 0036, lines 2-8).

Regarding claim 12, Hirawa discloses the claimed invention but does not specifically disclose wherein each of said memory elements further includes an output node electrically coupled to an electrode of said respective light modulation element and to an input node of an additional one of said memory elements. Moore et al. discloses, in figure 4, wherein each of said memory elements (402) further includes an output node electrically coupled to an electrode (406) of said respective light modulation element (402) and to an input node of an additional one of said memory elements (402) (section 0036).

Regarding claim 13, Hirawa discloses, in figures 5 and 8, spatial light modulator, wherein said memory elements (431) are interconnected in a shift register configuration (col. 7, lines 1-3).

Regarding claim 14, Hirawa and Moore et al. disclose the claimed invention but does not specifically disclose wherein said memory elements each include a master-slave flip-flop. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention to include wherein said memory elements each include a master-slave flip-flop for the purpose of two gated D latches in series, and invert the enable input to one of them.

Regarding claim 15, Hirawa discloses, in figures 5 and 8, spatial light modulator, further comprising: a timing circuit (521) in communication with each of said memory elements (431) to shift the data between said memory elements (431) (col. 7, lines 1-3).

Regarding claim 16, Hirawa discloses, in figures 5 and 8, spatial light modulator, wherein said timing circuit 9521) is a ripple clock (col. 7, lines 1-3).

Regarding claim 17, Hirawa and Moore et al. disclose the claimed invention but does not specifically disclose wherein said light modulation elements comprise liquid crystal material. It would have been obvious to modify the invention to include liquid crystal material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use (In re Leshin, 125 USPQ 416). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention to include wherein the light modulation elements comprising liquid crystal material for the purpose of using a lithography system.

6. Claims 3-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirawa (6831674 B2).

Regarding claim 3, Hirawa discloses the claimed invention but does not specifically disclose wherein said memory elements are configured to shift the data bi-directionally between rows. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention to include shifting the data bi-directionally between rows for the purpose of additional optical sampling.

Regarding claim 4, Hirawa discloses the claimed invention but does not specifically disclose wherein said memory elements are configured to shift the data bi-directionally between columns. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention to include shifting the data bi-directionally between columns for the purpose of additional optical sampling.

Regarding claim 5, Hirawa discloses the claimed invention but does not specifically disclose wherein said memory elements are configured to shift the data bi-directionally between at least one of non-adjacent rows and non-adjacent columns. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention to include shift the data bi-directionally between at least one of non-adjacent rows and non-adjacent columns for the purpose of additional optical sampling.

Regarding claim 7, Hirawa discloses the claimed invention but does not specifically disclose wherein said memory elements are static memory elements. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the invention to include static memory elements for the purpose of the memory elements maintaining a constant position.

Regarding claims 8 and 9, Hirawa discloses, in figures 5 and 8, spatial light modulator, wherein each of the memory elements (431) includes a feedback element (col. 7, lines 1-9).

7. Claims 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirawa (6831674 B2) Moore et al. (2003/0096497 A1) as applied to claim 1 above, and further in view of Bhuvu et al. (5612713).

Regarding claim 18, Hirawa and Moore et al. discloses the claimed invention but does not specifically disclose wherein said light modulation elements further comprise: a common electrode configured to receive a common electrode signal for said light modulation elements; and a respective pixel electrode configured to receive the data stored in said respective memory elements. Bhuva et al. discloses, in figures 2 and 3, a spatial light modulator, wherein said light modulation elements (10) further comprise: a common electrode (15) configured to receive a common electrode signal for said light modulation elements (10) (col. 3, lines 28-30); and a respective pixel electrode (14) configured to receive the data stored in said respective memory elements (10) (col. 3, lines 31-34). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Hirawa and Moore et al. with the electrodes of Bhuva et al. for the purpose of receiving the data from the memory elements (col. 3, lines 31-34).

Regarding claim 20, Hirawa and Moore et al. discloses the claimed invention but does not specifically disclose wherein said light modulation elements comprise micromirrors. Bhuva et al. discloses, in figures 2 and 3, a spatial light modulator, wherein said light modulation elements (10) comprise micromirrors (21) (col. 3, line 66). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Hirawa and Moore et al. with light modulation elements of Bhuva for the purpose of reflecting light.

Regarding claim 21, Hirawa and Moore et al. discloses the claimed invention but does not specifically disclose wherein said memory elements are arranged in blocks, a first one of said blocks configured to receive data from an external input and the others of said blocks configured

to receive data from other ones of said memory elements. Bhuva et al. discloses, in figures 2 and 3, a spatial light modulator, wherein said memory elements (10a) are arranged in blocks (31) (col. 4, lines 53-55), a first one of said blocks (31) configured to receive data from an external input and the others of said blocks configured to receive data from other ones of said memory elements (10a) (figure 3). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the device of Hirawa and Moore et al. with the memory elements of Bhuva et al. for the purpose of inputting and outputting data (col. 4, lines 53-55).

8. Claims 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gale et al. (5285407) in view of (JP 07-177041).

Regarding claims 22 and 25, Gale et al. discloses, in figures 2A, 2B, and 3, a method for performing photolithography, said method comprising: altering ones of the light modulation elements (21) in response to the data loaded thereunto to transfer the image onto a substrate (col. 5, lines 9-12); shifting the data between memory elements (col. 4, lines 7-11, 17-24); altering ones of the light modulation elements (21) in response to the data shifted thereunto to transfer the image onto the substrate (col. 4, lines 7-11, 17-24) but does not specifically disclose loading data representing an image into memory elements in communication with respective light modulation elements. JP 07-177041 discloses, in figure 1, loading data representing an image into memory elements (43 and 44) in communication with respective light modulation elements (22) (sections 0019 and 0021). Therefore it would have been obvious to one having ordinary skill in the art at

the time the invention was made to combine the device of Gale with the modulation elements of JP 07-177041 for the purpose of displaying the stored and shifted data (sections 0019 and 0021).

Regarding claim 23, Gale et al. discloses, in figures 2A, 2B, and 3, a method for performing photolithography, wherein each said altering further comprises: applying a voltage in response to the data to the change optical characteristics of the light modulation elements (21) (col. 4, lines 44-61).

Regarding claim 24, Gale et al. discloses, in figures 2A, 2B, and 3, a method for performing photolithography, wherein said shifting further comprises: utilizing a ripple clock to control the timing of said shifting (col. 4, lines 13-16).

Regarding claim 26, Gale et al. discloses, in figures 2A, 2B, and 3, a method for performing photolithography, wherein said altering in response to the shifted data is performed after said moving (col. 5, lines 9-12).

Allowable Subject Matter

9. Claims 11 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 11 and 19, wherein the claimed invention comprises, in claim 11, access

control elements including a forward access control element and a reverse access control element; in claim 19, a timing circuit that shifts inverted data from a first to a second memory element and switches the common electrode signal, as claimed.

Response to Arguments

11. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N. Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on Monday - Thursday from 6-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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BNT

Brandi N Thomas
Examiner
Art Unit 2873



Scott J. Sugarman
Primary Examiner